

REMARKS

Applicants have added new claims 41-44. Support for the new claims appears at page 14, lines 3-6 of the specification. Claims 1-5 were previously cancelled. No new matter has been introduced.

Upon entry of the above amendments, claims 6-44 will be pending and under examination. Applicants respectfully request that the Examiner reconsider this application in view of the following remarks.

Rejection under 35 U.S.C. § 103 (a)

In the final office action dated July 17, 2007 ("Office Action"), the Examiner rejected claims 6-40 as unpatentable over Koger et al., U.S. Patent 6,646,058 ("Koger"). Claims 6, 16, 24, and 32, the four independent claims, will be discussed first.

Claims 6 and 16 each cover a vibration damping composition containing a thickener and a water-based copolymer latex. Claims 24 and 32 each cover a method for increasing viscosity of a vibration damping composition that contains a thickener and a water-based copolymer latex. All of these claims require that the thickener include a polymer, i.e., thickener polymer, made of, among others, 0.001-2.0 mol% (corresponding to 0.01-16.9 wt. %¹) an associating monomer unit.

The Examiner erred in equating the thickener polymer recited in claims 6, 16, 24, and 32 with the dispersant polymer described in Koger and comparing their respective monomer contents. More specifically, the Examiner asserted that, as Koger teaches a dispersant polymer that includes a macromonomer (analogous to the associating monomer unit recited in claims 6, 16, 24, and 32) having an overlapping content range (i.e., 0.5-60 wt. %) with that recited in claims 6, 16, 24, and 32 (i.e., 0.001-2.0 mol%, corresponding to 0.01-16.9 wt. %), the content range of the associating monomer in the

¹ To facilitate comparison, Applicants apply the converting formula: $y(x) = x \cdot A / [x \cdot A + (1-x) \cdot B]$, where A is the molecular weight of the associating monomer unit, B is the molecular weight of the other two units (which have very close molecular weights), and x and y are mol% and wt.% of the associating monomer unit, respectively. Referring to the example at page 26, lines 6-15 of the specification, an associating monomer unit (i.e., C₁₂₃H₂₄₄O₅₂) has a molecular weight of 832 and an alkali-soluble monomer unit (i.e., methacrylic acid) has a molecular weight of 86. Since A equals roughly to 10B here, $y(x) = x \cdot 10B / [x \cdot 10B + (1-x) \cdot B] = 10x / (9x+1)$. Accordingly, the 0.001-2.0 mol% range amounts to about 0.01-16.9 wt. %.

thickener polymer recited in these claims would have been obvious in view of the content range of the macromonomer in the dispersant polymer taught in Koger. See the Office Action, page 2, item 3.

In response, Applicants pointed out that one skilled in the art would recognize that a dispersant polymer is not the same as a thickener polymer and that Koger itself teaches that a dispersant polymer and a thickener polymer have very different properties and very different molecular weights. Applicants further argued that claims 6, 16, 24, and 32 are also not obvious in view of Koger on an additional ground, as Koger is silent on the content of the macromonomer in the thickener polymer. Applicants proceeded to conclude that the Examiner failed to establish a *prima facie* case of obviousness. See the response dated October 12, 2007, pages 10 and 11.

After reviewing Applicants' arguments, the Examiner issued an advisory action dated October 23, 2007 ("Advisory Action") to reiterate her position that "[t]he prior art teaches a composition containing an emulsion polymer with constituent monomers in overlapping amounts. Thus, upon inspection of the prior art to Koger et al., one of ordinary skill in the art would meet the compositional requirements set forth in the instant claim." See the Advisory Action, page 2, last two sentences of paragraph 2. In other words, regardless of the substantial differences between a thickener polymer and a dispersant polymer, the Examiner is of the position that a skilled artisan would have been motivated to modify the macromonomer content of the dispersant polymer described in Koger to obtain the vibration damping composition covered by claims 6 and 16 or recited in claims 24 and 32. However, nowhere in Koger is mentioned a composition for vibration damper containing the dispersant polymer or a method of increasing viscosity of such a composition. Again, the Examiner has failed to establish a *prima facie* case of obviousness.

Even if the Examiner had established a *prima facie* case of obviousness (which Applicants do not concede), this rejection can be readily overcome by unexpected results described in the declaration by inventor Takahiro Miwa, copy attached hereto as "Exhibit A." As shown in Experiment I described in the declaration, a latex (denoted

herein and in the declaration as "reproduced Koger latex") was synthesized following the same procedures described in Example 3 of Koger. Table I in the declaration shows that the properties of the reproduced Koger latex were identical or nearly identical to those of the dispersant latex prepared in Example 3 of Koger. In Experiment II described in the declaration, the reproduced Koger latex was tested for its drying property and vibration damping property,² as compared with those of the thickener emulsion tested in Example 4 of the present application. The results (shown in Table II presented in the declaration) indicate that the thickener called for in the claimed invention, in which a polymer had 10 wt. % (within the range of 0.01-16.9 wt. %) macromonomer exhibited much better drying and vibration damping properties than the reproduced Koger latex, in which a polymer had 40 wt. % (outside the range of 0.01-16.9 wt. %) macromonomer.

The Examiner is reminded of the following MPEP guideline:

Applicants can rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range. "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. ... In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves **unexpected results** relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). MPEP 2144.05 III; emphasis added.

As described above, Koger at most teaches a dispersant polymer containing a macromonomer that has an overlapping content range (i.e., 0.5-0.5-60 wt. %) with that recited in claims 6, 16, 24, and 32 (i.e., 0.001-2.0 mol%, corresponding to 0.01-16.9 wt. %). The declaration shows unexpected results in connection with the range recited in these claims; namely, a polymer having a macromonomer content not greater than 16.9 wt. % was superior to a polymer having a macromonomer content greater than 16.9 wt. %. Pursuant to the above-quoted MPEP guideline, the *prima facie* case of obviousness based on an overlapping range has been rebutted by a showing of the unexpected results described above.

² The vibration damping property is expressed by the loss factor of a dried film formed from an emulsion. See the specification at page 29, lines 10-24.

For the reasons set forth above, claims 7-15 (dependent from claim 6), claims 17-23 (dependent from claim 16), claims 26-31 (dependent from claim 24), and claims 33-40 (dependent from claim 32) are also not rendered obvious by Koger.

New claims

Applicants have presented new claims 41-44 for examination.

New claims 41-44 depend from claims 6, 16, 24, and 32, respectively. They are nonobvious over Koger at least for the reasons set forth above.

These new claims are also nonobvious over Koger on an additional ground. New claims 41-44 all require the molecular weight of the polymer recited in claims 6, 16, 24, and 32 not less than 100,000. However, as already pointed out in our response dated October 12, 2007, Koger teaches that the molecular weight of the preferred dispersant polymer described therein ranges from about 5,000 to 10,000 grams per gram mole, which is much lower than 100,000. Indeed, the attached declaration points out the reproduced Koger latex contained a polymer having a molecular weight of 9,800. See page 2, last sentence of the first paragraph. One skilled in the art, in view of Koger's teaching of a dispersant polymer, having a molecular weight of 5,000 to 10,000, would not have been motivated to replace it with the polymer having a molecular weight of not less than 100,000 to arrive at the claimed invention.

CONCLUSION

For the reasons set forth above, Applicants submit that the grounds for the rejections asserted by the Examiner have been overcome and claims 6-44, as pending, cover subject matter that is unobvious over the prior art. Applicants request that all pending claims be allowed.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of

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any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

The excess claims fee in the amount of \$200.00 is being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply any other charges or credits to Deposit Account No. 50-4189, referencing Attorney Docket No. 60004-090001.

Respectfully submitted,

Date: _____

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